

# Arsenic

*Owners of private wells are responsible for ensuring that their water is safe from contaminants. The presence of contaminants in water can lead to health issues, including gastrointestinal illness, reproductive problems, and neurological disorders.*

## **What is arsenic?**

Arsenic is a naturally occurring mineral found in soil and bedrock and enters the groundwater through erosion. Arsenic can be present in well water as Arsenic III (arsenite), Arsenic V (arsenate), or a combination of the two. Arsenic III is more toxic and more common in groundwater than Arsenic V.

## **Where and how does arsenic get into drinking water?**

Arsenic occurs naturally in rocks, soil, water, air, and plants and animals. It can be further released into the environment through natural activities such as volcanic action, erosion of rocks and forest fires, or through human actions. The demand on groundwater from drinking water wells may cause water levels to drop and release arsenic from rock formations.

## **What are the health effects?**

Health effects from arsenic exposure include skin damage, diabetes, circulatory system problems and an increased cancer risk, including cancers of the skin, bladder, lungs, kidneys, nasal passages, liver and prostate. Early warning signs may include stomach pain, nausea, vomiting, diarrhea, and numbness in the extremities.

## **How can I find out whether there is arsenic in my drinking water?**

Arsenic has no smell, taste, or color when dissolved in water, even in high concentrations, and therefore only laboratory analysis can determine the presence and concentration of arsenic in water. If there is arsenic in your water, a laboratory can determine how much and which type(s) of arsenic is present, through a method called "speciation." This is important because treatment methods vary for each type. You may also test for other contaminants, including iron and manganese, because the presence of these contaminants may hinder the effectiveness of arsenic removal and will need to be removed before treatment.

As the well owner, you are responsible for sampling and testing your drinking water. DEQ has compiled a [list of laboratories](#) in the state for your convenience.

**How do I remove arsenic from my drinking water?**

There are typically two species of arsenic in water, arsenic 3 and arsenic 5. Arsenic 3 is difficult to remove from water and must be changed or oxidized to arsenic 5 before it can be removed. Oxidants that can convert arsenic 3 to arsenic 5 include liquid chlorine (bleach), hydrogen peroxide, and ozone. Chlorine is the most readily available oxidant for home water treatment. Since arsenic poses an ingestion risk, the water that is ingested mainly needs to be treated. Point of use devices like activated alumina or reverse osmosis have proven to be effective for removing arsenic. In most cases, the device is plumbed in at the kitchen sink and treats only the water intended solely for consumption.